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10/032,973	10/24/2001	Thomas Brinz	10191/2064	8723

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EXAMINER

DEJESUS, LYDIA M

ART UNIT PAPER NUMBER

2859

DATE MAILED: 08/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/032,973

Applicant(s)

BRINZ, THOMAS

Examiner

Lydia M. De Jesús

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 16-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 16-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 08 May 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Drawings*

1. The proposed drawing correction filed on May 8, 2003 has been approved. A proper drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The correction to the drawings will not be held in abeyance. ✓

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 22 is rejected under 35 U.S.C. 102(b) as being anticipated by Ladewski.

Ladewski discloses a device for testing a material that changes shape when at least one of an electric field and a magnetic field is applied, comprising: a generator [32] for generating at least one of the electric field and the magnetic field to the material; a camera [34] configured to capture an image of the material after the at least one of the electric or magnetic field is applied; an analyzer unit [106] configured to determine a change in the shape or size of the material based on the captured image.

4. Claims 1-5, 8-9, 14, 16-18, 20 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Long et al. [U.S. Patent 5,745,238, hereinafter Long].

Long discloses a device for testing a material [22] that changes shape when at least one of an electric field and a magnetic field is applied (see lines 9-15 of column 4), comprising: a generator for generating at least one of the electric field and the magnetic field (see lines 9-15 of

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column 4 and line 62 of column 6 through line 4 of column 7) and applying the at least one of the electric field and the magnetic field to the material; at least one thermal sensor [temperature sensor 27, IR camera 24] for detecting a change in temperature of the material associated with the at least one of an electric and a magnetic field; and a measurement unit [25] for measuring a change in shape of the material after the at least one of the electric and the magnetic field is applied (lines 58-62 of column 5). Said material [22] further includes a piezoelectric membrane [12](see lines 9-14 of column 4) arranged on a substrate, the substrate being the material [22] and said membrane considered to be an electric contacting.

At least one thermal sensor includes a thermal radiation detector/imaging unit i.e., IR camera (42-44 of column 5), for detecting electromagnetic radiation, said camera inherently has a local resolution and wherein at least one thermal sensor includes a non-optical thermal sensor [27]. Said imaging unit/thermal radiation detector [24] will function as an optical measurement unit for measuring a change in at least one of shape and a length of the material (see lines 55-62 of column 5).

The device further comprises an arrangement for performing a temperature control of the substrate [22] (see lines 1-7 of column 6).

Furthermore, Long discloses that different patterns may also be used on the substrate (see lines 20-24 of column 4).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 1-2, 4-7, 10-13, 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Han et al. [U.S. Patent 6,134,955, hereinafter Han] in view of Pylkki et al. [U.S. Patent 5,441,343, hereinafter Pylkki].

Han discloses a device for testing a material [54] that changes shape when at least one of an electric field and a magnetic field is applied, comprising: a generator for generating at least one of the electric field and the magnetic field and applying the at least one of the electric field and the magnetic field to the material (see lines 19-35 of column 5); and a measurement unit for measuring a change in shape of the material after the at least one of the electric and the magnetic field is applied (see lines 39-60 of column 5). Said material [54] inherently is piezoelectric.

The device of Han further comprises an imaging unit [60] for obtaining an image of the material [54]. The device also includes a unit for periodically varying the magnetic field as a sinusoidal change, as shown in Figure 7 (see also lines 39-60 of column 5).

Han fails to particularly disclose at least one thermal sensor for detecting a change in temperature of the material associated with the at least one of an electric and a magnetic field, and further wherein at least one thermal sensor has a local resolution,

However, Pylkki teaches the use of a thermocouple in an atomic force microscope, as that shown by Han, said thermocouple considered to have local resolution. Pylkki also shows detecting a portion of a heating of the material attributed to an electronic current attributed to an electric current associated with the at least one of the electric and magnetic field and compensating a temperature increase detected by the at least one thermal sensor in the material

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i.e., Joule heating, with the portion of the heating of the material attributed to the electric current (see lines 37-66 of column 9).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add a thermal sensor in the form of a thermocouple to the cantilever probe of the device of Han and to compensate for the heating of the material attributed to the electric or magnetic field, as taught by Pylkki, in order to allow combining thermal profiling with topography of the sample.

Pylkki also teaches that it is very well known in the art to provide electric contacting arranged in the material of the sample (see lines 53-58 of column 6), in this case a glued steel plate/layer, and to examine samples that include at least two areas of different materials (see lines 33-41 of column 5).

### ***Response to Arguments***

7. Applicant's arguments with respect to claims 1-14 and 16-22 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Bergen discloses a deformation imaging element. Kyoden et al. disclose an apparatus for automatic measuring thermal dimensional change. Lemelson et al. disclose an image analysis system and method. Teale discloses a device for detecting and recording electromagnetic radiation including an active magnetic element a parameter of which can be changed by the radiation.

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9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lydia M. De Jesús whose telephone number is (703) 306-5982. The examiner can normally be reached on 7:30 to 4:00 p.m., Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F.F. Gutierrez can be reached on (703) 308-3875. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 305-3431 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.



Diego F.F. Gutierrez  
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LDJ  
July 28, 2003